

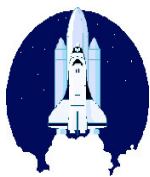


countdown

November 18, 2008

Vol. 13, No. 86

Endeavour docking begins ISS makeover



◆ Shuttle Update:

Space shuttle Endeavour docked with the International Space Station at 5:01 p.m. Sunday, carrying the Leonardo logistics module with more than 14,000 pounds of cargo for the complex. Transfer of equipment and supplies between Endeavour's middeck and the station began Sunday.

The Leonardo cargo module was installed on the station Monday so that its contents can be unloaded. The shuttle and station crews will collaborate on the delivery of the key life support and habitability systems that will enable long-term, self-sustaining station operations for a six-person resident crew.

◆ **Ares Update:** NASA's newest high-performance rocket engine, the J-2X, successfully completed its critical design review Thursday at NASA's Marshall Space Flight Center in Huntsville, Ala.

The J-2X engine, developed for NASA by Pratt and Whitney Rocketdyne of Canoga Park, Calif., is the first element of NASA's Constellation Program to pass this design milestone. The engine will power the upper stage of NASA's next-generation Ares I rocket and the Earth departure stage of the Ares V heavy cargo launch vehicle.

The Constellation Program is responsible for developing this new fleet of rockets, as well as the Orion crew capsule and the Altair lunar lander that will send explorers to the International Space Station, the moon and beyond.

The J-2X engine is expected to be

the most efficient engine of its type. The high efficiency is achieved by using advanced design turbopumps, fuel injectors and a large extension added to the nozzle -- the large, bell-shaped structure through which exhaust gases are expelled with great force as they are burned by the engine. These enhancements deliver greater thrust, or liftoff power, while burning fuel more efficiently.

The J-2X development follows the Constellation Program's goals to seek commonality between the Ares I and Ares V systems, and use proven hardware and knowledge from 50 years of American spaceflight experience to streamline development and reduce program, technical and budget risks.

■ **Book Fair at NASA Exchange** — The Book Fair continues today at the HQ Café 10 a.m.–3 p.m. and at the MFF Thursday and Friday 10 a.m.–3 p.m. Cash, checks and most major credit cards will be accepted.

■ **NASA News Update** — NASA released a newly restored 42-year-old image of Earth on Thursday. The Lunar Orbiter 1 spacecraft took the iconic photograph of Earth rising above the lunar surface in 1966.

Using refurbished machinery and modern digital technology, NASA produced the image at a much higher resolution than was possible when it was originally taken. The data may help the next generation of explorers as NASA prepares to return to the moon.

In the late 1960s, NASA sent five Lunar Orbiter missions to photograph the surface of the moon to gain a better un-

Ares engine design builds on spaceflight experience

derstanding of the lunar environment in advance of the Apollo Program. Data were recorded on large magnetic tapes and transferred to photographic film for scientific analysis. When these images were first retrieved from lunar orbit, only a portion of the true resolution was available because of the limited technology.

■ **Bridge Maintenance** — The Roy Bridges Bridge speed limit will be reduced to 15 mph starting today through Friday for scheduled maintenance. Friday, traffic will be reduced to one lane, so expect a slight delay in crossing. Saturday, the bridge will be closed to all traffic from 7 a.m. to 3 p.m.

■ **NASA Science** — Researchers have discovered magnetic portals forming high above Earth that can briefly connect our planet to the Sun. Not only are the portals common, one space physicist contends they form twice as often as anyone had previously imagined. You can read the full story at:

http://science.nasa.gov/headlines/y2008/30oct_ftes.htm.

■ **Reminder** — The one-day 7 Habits Maximizer class will be held Dec. 4. All KSC employees are eligible to attend this training. Learners must register in SATERN <https://satern.nasa.gov>.

Countdown is published every Tuesday & Thursday for NASA KSC employees. Deadlines are 9 a.m. Mondays & Wednesdays. E-mail news to anita.l.barrett@nasa.gov. For questions or information, e-mail or call 867-2815. You can also find PDF editions of *Countdown* on the Web at: http://www.nasa.gov/centers/kennedy/news/countdown/countdown_toc.html.